

[0016] FIG. 1C is a diagram illustrating a communication system, according to an embodiment of the present disclosure;

[0017] FIG. 2 is a diagram illustrating a structure of a radio frame in long term evolution (LTE);

[0018] FIG. 3A is a diagram illustrating a pattern of a CRS mapped to a resource block;

[0019] FIG. 3B is a diagram illustrating a pattern of a PRS mapped to a resource block;

[0020] FIG. 4 is a diagram illustrating an operation or a function of measuring a TDOA, according to an embodiment of the present disclosure;

[0021] FIG. 5 is a diagram illustrating a pattern of a signal in which a CRS and a PRS are combined, according to an embodiment of the present disclosure;

[0022] FIG. 6 is a diagram illustrating a pattern of a signal in which a synchronization signal and a PRS are combined, according to an embodiment of the present disclosure; and

[0023] FIG. 7 is a flowchart illustrating a method for controlling a communication device, according to an embodiment of the present disclosure.

DETAILED DESCRIPTION

[0024] Embodiments of the present disclosure are described in detail with reference to the accompanying drawings. The same or similar components may be designated by the same or similar reference numerals although they are illustrated in different drawings. Detailed descriptions of constructions or processes known in the art may be omitted to avoid obscuring the subject matter of the present disclosure.

[0025] Herein, expressions such as “having,” “may have,” “comprising,” and “may comprise” indicate the existence of a corresponding characteristic (e.g., an element such as a numerical value, function, operation, or component), and does not exclude the existence of one or more additional characteristics.

[0026] Herein, expressions such as “A or B,” “at least one of A and B,” and “one or more of A and B” may include all possible combinations of together listed items. For example, “A or B,” “at least one of A and B,” and “one or more of A and B” may indicate (1) at least one A, (2) at least one B, or (3) both at least one A and at least one B.

[0027] Expressions such as “first,” “second,” “primarily,” or “secondary,” as used herein, may represent various elements regardless of order and/or importance and do not limit the corresponding elements. The expressions may be used to distinguish one element from another element. For example, a first user device and a second user device may represent different user devices regardless of their order or importance. Additionally, a first element may be referred to as a second element without deviating from the scope of the present disclosure, and similarly, a second element may be referred to as a first element.

[0028] When it is described that an element (such as a first element) is “operatively or communicatively coupled” or “connected” to another element (such as a second element), the element can be directly connected to the other element or the element can be connected to the other element through a third element. However, when it is described that an element (such as the first element) is “directly connected” or “directly coupled” to another element (such as the second element), there is no intermediate element (such as the third element) between the element and the other element.

[0029] The expression “configured to (or set)”, as used herein, may be replaced with, for example, “suitable for,” “having the capacity to,” “designed to,” “adapted to,” “made to,” or “capable of” according to the situation. Additionally, the expression “configured to (or set)” does not always mean only “specifically designed to” by hardware. Alternatively, the expression “apparatus configured to” may mean that the apparatus “can” operate together with another apparatus or component. For example, the phrase “a processor configured (or set) to perform A, B, and C” may be a generic-purpose processor (such as a central processing unit (CPU) or an application processor (AP)) that can perform a corresponding operation by executing at least one software program stored at an exclusive processor (such as an embedded processor) for performing a corresponding operation, or stored at a memory device.

[0030] Terms defined herein are only used to describe a specific embodiment, and are not intended to limit the scope of other embodiments. A singular form may include a plurality of forms unless it is explicitly differently represented. Technical and scientific terms used herein may have the same meanings as those generally understood by a person of common skill in the art. Generally used terms that are defined in a dictionary have the same meanings as or similar meanings to those of a context of related technology, and are not to be analyzed as an ideal or excessively formal meaning unless explicitly defined. In some cases, terms defined herein cannot be analyzed to exclude the embodiments of the present disclosure.

[0031] Hereinafter, with reference to the accompanying drawings, a communication device and a UE are described according to embodiments of the present disclosure. Herein, the term “user” may indicate a person who uses a communication device, a device or an apparatus using a communication device (e.g., an artificial intelligence device), a person who uses the UE, or a device or an apparatus using the UE.

[0032] Referring to FIG. 1A, a diagram illustrates a communication device, according to an embodiment of the present disclosure. A communication device 100 includes a transceiver 101, a processor 102, and a memory 103.

[0033] The transceiver 101 configures communication between the communication device 100 and an external device (e.g., a first external electronic device 130, a second external electronic device 140, or a server 150 of FIG. 1B). For example, the transceiver 101 may be connected to a network 120 of FIG. 1B through wired or wireless communication to communicate with the external device. According to an embodiment, the term “transceiver” may be interchangeably used with various terms such as, for example, “communication module” or “communication interface”.

[0034] Wireless communication may be performed using at least one of LTE, LTE-advanced (LTE-A), code division multiple access (CDMA), wideband CDMA (WCDMA), a universal mobile telecommunications system (UMTS), wireless broadband (WiBro), and a global system for mobile communications (GSM). Wireless communication may include, for example, short-range communication. Short-range communication may include, for example, at least one of wireless fidelity (WiFi), Bluetooth, near field communication (NFC), and a global navigation satellite system (GNSS). The GNSS may include at least one of a GPS, a global navigation satellite system (Glonass), a Beidou navi-